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**TITLE:** PRINTER RETRIEVAL METHOD, INFORMATION PROCESSING  
SYSTEM AND STORAGE MEDIUM

**PUBN-DATE:** November 9, 1999

**INVENTOR-INFORMATION:**

**NAME** **COUNTRY**

FUJISAWA, KUNIMASA N/A

**INT-CL (IPC):** G06F003/12 , B41J029/38

**ABSTRACT:**

**PROBLEM TO BE SOLVED:** To allow a user of a network to easily retrieve a printer in a printer retrieving method, in a information processing system, and in a storage medium for network printing.

**SOLUTION:** In a printer information data base generating program 104, a printer information obtaining part 105 requests a printer 101 to send printer information and obtains it, and a data base constructing part 106 constructs a printer information data base from the obtained printer information, and a data base storing part 107 stores the constructed printer information data base. In a printer retrieval program 108, a printer retrieval condition inputting part 106 inputs a prescribed retrieval condition, and a printer retrieval executing part 117 retrieves the printer information data base, and a printer retrieved result displaying part 119 displays the obtained printer information.

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TITLE: **Printer** search method in network - involves searching printer information database according to predetermined search conditions and displaying printer information

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BASIC-ABSTRACT:

NOVELTY - The printer information database is stored by the database memory (107). The printer search execution unit (117) searches printer information database according to predetermined search conditions input by an input unit (116). The searched printer information is displayed by a display unit (119).

DETAILED DESCRIPTION - Printer information is acquired by production program (104). The database build-up unit (106) builds up the printer information database by acquired printer information. INDEPENDENT CLAIMS are also included for the following: information processing system; recording medium

USE - For searching printer connected in network such as internet.

ADVANTAGE - Since the printer information is searched according to predetermined information, the user of network can search printer easily, thus enabling usage of desired printer. DESCRIPTION OF DRAWING(S) - The figure shows explanatory drawing of structure of printer search system. (104)

Production program; (106) Database build-up unit; (107) Database memory; (116) Printer search condition input unit; (117) Printer search execution unit; (119) Display unit.

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Basic Abstract Text - ABTX (1):

NOVELTY - The printer information database is stored by the database memory

(107). The **printer** search execution unit (117) searches **printer** information database according to predetermined **search conditions** input by an input unit (116). The searched printer information is displayed by a display unit (119). DETAILED DESCRIPTION - Printer information is acquired by production program (104). The database build-up unit (106) builds up the printer information database by acquired printer information. INDEPENDENT CLAIMS are also included for the following: information processing system; recording medium

Basic Abstract Text - ABTX (3):

ADVANTAGE - Since the printer information is searched according to predetermined information, the user of network can search printer easily, thus enabling usage of desired printer. DESCRIPTION OF DRAWING(S) - The figure shows explanatory drawing of structure of printer search system. (104) Production program; (106) Database build-up unit; (107) Database memory; (116) **Printer search condition** input unit; (117) **Printer** search execution unit; (119) Display unit.

Title - TIX (1):

**Printer** search method in network - involves searching **printer** information database according to predetermined **search conditions** and displaying **printer** information

PF Application Date - PFAD (1):

**19980428**

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**Notes:**

1. Untranslatable words are replaced with asterisks (\*\*\*\*).
2. Texts in the figures are not translated and shown as it is.

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Dictionary: Last updated 09/07/2007 / Priority: 1. Information communication technology (ICT) / 2. Electronic engineering / 3. JIS (Japan Industrial Standards) term

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**FULL CONTENTS**

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**[Claim(s)]**

[Claim 1] The data base construction step which builds the printer information data base of a printer, It is the printer search method which performs the printer information search step which searches said printer information data base, and searches the printer of the request in a network. The information-requirements step which said data base construction step requires printer information of said printer, and acquires said printer information, The step which builds said printer information data base by said acquired printer information, Said built printer information data base including the step to memorize [ said printer information search step ] The printer search method characterized by including the step which searches said printer information data base according to a predetermined search condition, and the step which displays the printer information acquired by the search concerned.

[Claim 2] The demand which performs said data base construction step, or a predetermined time interval, Or the step which performs again a demand of the printer information in said information-requirements step according to a printing demand to the printer which had printer information memorized by said printer information data base, [ memorize / in said printer information data base / the printer information newly acquired from said printer ] The printer search method according to claim 1 characterized by including the step which updates said printer information data base when said printer information cannot be acquired from said printer.

[Claim 3] The printer search method according to claim 2 characterized by deleting the printer information of the printer concerned which does not answer from said printer information data base in said step to update when said printer does not answer to a demand of said printer information.

[Claim 4] The printer which is having printer information registered into said printer by which the printing demand was carried out, and said printer information data base at said step which

carries out the degree execution of re-, The printer search method according to claim 2 or 3 characterized by requiring printer information about the printer chosen by the updating printer selection means among the printers concerned.

[Claim 5] Said printer is equipped with a notice means to tell having carried out network connection to the connecting means linked to said network through said network, and sets it to said data base construction step. The printer search method according to claim 1 to 4 characterized by performing said information-requirements step in response to the notice from said notice means.

[Claim 6] A data-base-construction means to build the printer information data base of a printer, It is the information processing system with which the printer of the request in a network is searched by a printer information search means to search said printer information data base. An information-requirements means for said data-base-construction means to require printer information of said printer, and to acquire said printer information, A means to build said printer information data base by said acquired printer information, Said built printer information data base including a means to memorize [ said printer information search means ] Information processing system characterized by including a means to search said printer information data base according to a predetermined search condition, and a means to display the printer information acquired by the search concerned.

[Claim 7] A means to perform again a demand of the printer information by said information-requirements means according to a printing demand to the printer which had printer information memorized by the demand, the predetermined time interval, or said printer information data base of printer information to said printer, [ memorize / in said printer information data base / the printer information newly acquired from said printer ] Information processing system according to claim 6 characterized by including a means to update said printer information data base when said printer information cannot be acquired from said printer.

[Claim 8] Information processing system according to claim 7 characterized by deleting the printer information of the printer concerned which does not answer from said printer information data base by said means to update when said printer does not answer to a demand of said printer information.

[Claim 9] The printer which is having printer information registered into said printer by which the printing demand was carried out, and said printer information data base by said means which carries out the degree execution of re-, Information processing system according to claim 7 or 8 characterized by requiring printer information about the printer chosen by the updating printer selection means among the printers concerned.

[Claim 10] Have a notice means to tell having carried out network connection of said printer to the connecting means linked to said network through said network, and [ said data-base-

construction means ] Information processing system according to claim 6 to 9 characterized by requiring printer information of said printer by said information-requirements means in response to the notice from said notice means.

[Claim 11] Said printer is information processing system according to claim 6 to 10 characterized by having a storage means to memorize said printer information.

[Claim 12] The data base construction step which builds the printer information data base of a printer, It is the record medium which memorized the program of the printer search method which is made to perform the printer information search step which searches said printer information data base, and searches the printer of the request in a network. The information-requirements step which said data base construction step requires printer information of said printer, and acquires said printer information, The step which builds said printer information data base by said acquired printer information, Said built printer information data base including the step to memorize [ said printer information search step ] The record medium which memorized the program characterized by including the step which searches said printer information data base according to a predetermined search condition, and the step which displays the printer information acquired by the search concerned.

[Claim 13] The demand which performs said data base construction step, or a predetermined time interval, Or the step which performs again a demand of the printer information in said information-requirements step according to a printing demand to the printer which had printer information memorized by said printer information data base, [ memorize / in said printer information data base / the printer information newly acquired from said printer ] The record medium according to claim 12 which memorized the program characterized by including the step which updates said printer information data base when said printer information cannot be acquired from said printer.

[Claim 14] The record medium according to claim 13 which memorized the program characterized by deleting the printer information of the printer concerned which does not answer from said printer information data base in said step to update when said printer does not answer to a demand of said printer information.

[Claim 15] The printer which is having printer information registered into said printer by which the printing demand was carried out, and said printer information data base at said step which carries out the degree execution of re-, The record medium according to claim 13 or 14 which memorized the program characterized by requiring printer information about the printer chosen by the updating printer selection means among the printers concerned.

[Claim 16] Said printer is equipped with a notice means to tell having carried out network connection to the connecting means linked to said network through said network, and sets it to said data base construction step. The record medium according to claim 12 to 15 which memorized the program characterized by performing said information-requirements step in

response to the notice from said notice means.

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a printer search method, information processing system, and a record medium, and is network - especially. It is related with the printer search method in printing, information processing system, and a record medium.

[0002]

[Description of the Prior Art] the function (a paper size --) for which a network user wants to use himself out of the printer which exists in the network now In order to choose from a network the printer which has the existence of a color, black and white, resolution, and a double-sided unit, the kind of font which can be used, print speed, a printing method, etc. The printer connected to the network is shared by referring to the printer information data base in which the information about a printer was brought together.

[0003] However, the network administrator is performing creation and renewal of this printer information data base manually conventionally.

[0004] For this reason, when it is the network in which two or more domains gathered like intranet, Since the number of the printers which exist on the network also increases, and adjustment between the managers of each domain may be needed or it may be in the remote place where a network administrator differs from the location of a printer, In small networks, such as LAN, the cost of the printer information data base creation and updating which did not become a problem will become huge, and printer information data base creation and updating are becoming impossible substantially.

[0005] moreover, in order that a user may perform an output on the Internet from the printer which a print shop has, in searching a printer Printer information data base creation and updating by manual labor are difficult for the Reasons of that it is impossible to perform adjustment between each domain of the Internet, the number of printers increasing very much. Therefore, a user is unable to search from a network a printer with the function which he wants to use.

[0006]

[Problem to be solved by the invention] Thus, conventional network - The following technical problems occurred in printing.

[0007] \*\* Network - in which a network user has the function which he needs In a big network, it is very difficult to look for a printer.

[0008] \*\* The time and effort which manages the printer information data base in which the

information on the printer connected to the network was brought together also increases, the load to a network administrator increases, and it is possible that management finally becomes impossible as a network becomes large.

[0009] \*\* in managing the printer information data base in which the information on the printer connected to the network by the network administrator's manual labor was brought together Since it cannot respond promptly when a printer is newly connected or the connected printer is removed, The printer newly connected to the network may be unable to be used immediately, or the printer which does not already exist on a network may seem to still exist.

[0010] Then, this invention is accomplished in view of an above-mentioned technical problem, and it aims at offering the printer search method, the information processing system, and the record medium which solved the above-mentioned technical problem.

[0011]

[Means for solving problem] In order to solve the above-mentioned technical problem, [ this invention method of Claim 1 ] The data base construction step which builds the printer information data base of a printer, It is the printer search method which performs the printer information search step which searches said printer information data base, and searches the printer of the request in a network. The information-requirements step which said data base construction step requires printer information of said printer, and acquires said printer information, The step which builds said printer information data base by said acquired printer information, Said built printer information data base including the step to memorize [ said printer information search step ] It is characterized by including the step which searches said printer information data base according to a predetermined search condition, and the step which displays the printer information acquired by the search concerned.

[0012] Moreover, the demand in which this invention method of Claim 2 performs said data base construction step in Claim 1 or a predetermined time interval, Or the step which performs again a demand of the printer information in said information-requirements step according to a printing demand to the printer which had printer information memorized by said printer information data base, When the printer information newly acquired from said printer is not memorized in said printer information data base or said printer information cannot be acquired from said printer, the step which updates said printer information data base can be included.

[0013] Moreover, in Claim 2, this invention method of Claim 3 can delete the printer information of the printer concerned which does not answer from said printer information data base in said step to update, when said printer does not answer to a demand of said printer information.

[0014] Moreover, in Claim 2 or 3, this invention method of Claim 4 [ said step performed again ] Printer information can be required about said printer by which the printing demand was carried out, the printer which is having printer information registered into said printer information data base, and the printer chosen by the updating printer selection means among



the printers concerned.

[0015] Moreover, in Claim 1 or either of 4, this invention method of Claim 5 [ said printer ] It can have a notice means to tell having carried out network connection to the connecting means linked to said network through said network, and said information-requirements step can be performed in response to the notice from said notice means in said data base construction step.

[0016] In order to solve the above-mentioned technical problem, [ this invention system of Claim 6 ] A data-base-construction means to build the printer information data base of a printer, It is the information processing system with which the printer of the request in a network is searched by a printer information search means to search said printer information data base. An information-requirements means for said data-base-construction means to require printer information of said printer, and to acquire said printer information, A means to build said printer information data base by said acquired printer information, Said printer information search means is characterized by including a means to search said printer information data base according to a predetermined search condition, and a means to display the printer information acquired by the search concerned including a means to memorize said built printer information data base.

[0017] In Claim 6, this invention system of Claim 7 Moreover, a demand or the predetermined time interval of the printer information to an account printer, Or a means to perform again a demand of the printer information by said information-requirements means according to a printing demand to the printer which had printer information memorized by said printer information data base, When the printer information newly acquired from said printer is not memorized in said printer information data base or said printer information cannot be acquired from said printer, a means to update said printer information data base can be included.

[0018] Moreover, in Claim 7, this invention system of Claim 8 can delete the printer information of the printer concerned which does not answer from said printer information data base by said means to update, when said printer does not answer to a demand of said printer information.

[0019] Moreover, in Claim 7 or 8, this invention system of Claim 9 [ with said means which carries out the degree execution of re-] Printer information can be required about said printer by which the printing demand was carried out, the printer which is having printer information registered into said printer information data base, and the printer chosen by the updating printer selection means among the printers concerned.

[0020] Moreover, in Claim 6 or either of 9, this invention system of Claim 10 [ said printer ] Have a notice means to tell having carried out network connection to the connecting means linked to said network through said network, and [ said data-base-construction means ] In response to the notice from said notice means, printer information can be required of said printer by said information-requirements means.

[0021] Moreover, this invention system of Claim 11 can be equipped with a storage means by which said printer memorizes said printer information, in Claim 6 or either of 10.

[0022] In order to solve the above-mentioned technical problem, [ this invention record medium of Claim 12 ] The data base construction step which builds the printer information data base of a printer, It is the record medium which memorized the program of the printer search method which is made to perform the printer information search step which searches said printer information data base, and searches the printer of the request in a network. The information-requirements step which said data base construction step requires printer information of said printer, and acquires said printer information, The step which builds said printer information data base by said acquired printer information, Said built printer information data base including the step to memorize [ said printer information search step ] The program characterized by including the step which searches said printer information data base according to a predetermined search condition, and the step which displays the printer information acquired by the search concerned is memorized.

[0023] Moreover, the demand in which this invention record medium of Claim 13 performs said data base construction step in Claim 12 or a predetermined time interval, Or the step which performs again a demand of the printer information in said information-requirements step according to a printing demand to the printer which had printer information memorized by said printer information data base, When the printer information newly acquired from said printer is not memorized in said printer information data base or said printer information cannot be acquired from said printer, the program characterized by including the step which updates said printer information data base is memorized.

[0024] moreover, [ this invention record medium of Claim 14 ] in Claim 13 when said printer does not answer to a demand of said printer information The program characterized by deleting the printer information of the printer concerned which does not answer from said printer information data base in said step to update is memorizable.

[0025] Moreover, in Claim 13 or 14, this invention record medium of Claim 15 [ said step which carries out the degree execution of re-] The program characterized for printer information by demand soot \*\*\*\*\* about said printer by which the printing demand was carried out, the printer which is having printer information registered into said printer information data base, and the printer chosen by the updating printer selection means among the printers concerned is memorized.

[0026] Moreover, in Claim 12 or either of 15, this invention record medium of Claim 16 [ said printer ] Have a notice means to tell having carried out network connection to the connecting means linked to said network through said network, and it sets to said data base construction step. The program characterized by performing said information-requirements step in response to the notice from said notice means is memorized.

[0027]

[Mode for carrying out the invention] With reference to Drawings, the form of various operations of this invention is explained in detail hereafter.

[0028] (The 1st embodiment) Drawing 1 is the explanatory view of the 1st embodiment.

[0029] a printer 101 -- the interior -- printer information (the name of a printer, and the network address of a printer --) It has the printer information storage section 102 and the printer information response section 103 which memorize the list of option which shows the existence of options, such as color or monochrome, resolution, an usable paper size, an usable font list, and double-side printing. Printer information is data which has structure as shown in drawing 2 containing the name of data, a kind, a data length, etc., and is saved in the printer information storage section 102 with this form.

[0030] Drawing 3 is flow [ of the printer information data base creation program 104 ] -. It is a chart.

[0031] This printer information data base creation program 104 and the below-mentioned printer retrieval program 108 are loaded to the computer (un-illustrating) connected to a network, are executed, and are loaded to RAM, a hard disk, and the storage that can write other. Moreover, nonvolatile memory devices, such as ROM and NVRAM, may be made to memorize beforehand, and you may make it load by communicating with other equipment etc. through a network. Furthermore, it can detach and attach freely to the disk storage of a computer etc., the record medium which can be carried, for example, a floppy disk, can be made to be able to memorize, and it can also load.

[0032] Flow [ of drawing 3 ] - If it returns and explains to a chart, the printer information request packet 310 in order to search a network printer, as first shown in drawing 4 (A) at Step S303 will be created. This printer information request packet 310 is broadcast to a network at Step S304 (109 of drawing 1 , 112), and it waits for a printer information reply packet at Step S305. In addition, in the following descriptions, Step S is written as S.

[0033] The printer information response section 103 of a printer 101 which exists in a network answers this. Printer information is read from the printer information storage section 102 (111), the printer information reply packet 320 which performed encoding as shown in drawing 3 is created, and the printer information data base creation program 104 is answered through a network.

[0034] The printer information acquisition section 105 of the printer information data base creation program 104 receives the printer information reply packet 320 as shown in drawing 4 (B) answered from the printer 101 by S306, and decodes this packet 320. If data (a name, URL, an usable paper size, an usable font, etc.) as this showed to drawing 2 is obtained, this printer information will be passed to the printer information data-base-construction section 106 (114).

[0035] [ the printer information data-base-construction section 106 ] It investigates whether the data answered by S307 is memorized by the printer information data base storage section 107, and exists (115), and when it does not exist, after adding and registering with a printer information data base as shows drawing 5 the printer information answered by S308, it returns to S305. When the same data exists in the printer information data base storage section 107, it returns to S305 as it is.

[0036] The printer information data base built by such processing is saved in the printer information data base storage section 107.

[0037] In drawing 5 , the printer information data base 500 memorizes the data 510 for one printer by two or more sets, and the paper size which can be used for the "usable form list" field 520 of a printer information data base by an applicable printer is indicated.

[0038] Drawing 6 is the explanatory view of the printer retrieval program 108.

[0039] When a network user prints a document from application The printer retrieval program 108 is called by clicking the printer retrieval program calling button 602 of the print panel 601 of a utility with pointing devices, such as a mouse. If the function which he wants to use as a search condition of a printer is inputted, search of a printer information data base is performed and the printer which has a required function can be chosen. That is, if the printer retrieval program calling button 602 is clicked, the printer search window 603 of a program 108 will be displayed, and a search condition input and a search-results display will be performed according to this window 603.

[0040] [ with the paper-size field 604 of the printer search window 603 ] If the printer search condition input section 116 of the printer retrieval program 108 inputs "a paper size is the printer of A3" as a printer search condition and clicks the search button 605, the printer retrieval execution section 117 will perform a search. The retrieval execution section 117 of the printer retrieval program 108 searches what has "A3" in the "usable form list" field 510 of each record of the built printer information data base as paper data (118 of drawing 1 ).

[0041] Drawing 7 is the explanatory view of the printer information database retrieval (printer retrieval program 108) in the 1st embodiment, and searches similarly. [ in the case of the 2nd embodiment ].

[0042] If search is started, by S701, the "name of printer" field will create the list of empty data first. Then, a read pointer is moved to the head of the printer information data in the head of the data base which reads the printer information data base 500 from the head, and has the applicable field by S702.

[0043] If it skips to the head of printer information, the name of a printer will be read and memorized from printer information by S703. In S704, the printer information which is unrelated to search is skipped to the head 530 of a skip and the "usable form list" field 520 by moving a read pointer using the value of the length field of each data.

[0044] In S705, the data of the "usable form list" is read from this position, it progresses to S706, and it is investigated whether this read data is "A3." When the data which branched to S707, advanced after [ S710 ] adding the name of the printer memorized previously to the list of the data of the "name of printer" field when "A3" was read, and was read is not "A3", it branches to S708.

[0045] In S708, it investigates whether there is still any following usable paper data, when in a certain case it branches to S705 and there is nothing repeatedly, it progresses to S710, and it skips to the head of the following printer information. If it skips to the head of the following printer information, it will be investigated whether it is coming to the tail of the printer information data base by S711. In the case of a tail, search is ended, and if it is not a tail, it will be branched and repeated to S703.

[0046] After search is completed, the list of the data of the "name of printer" field is passed to the search-results display 119 of the printer retrieval program 108. The search-results display 119 is displayed on the search-results display box 607 of the printer search window 603 as the list of names of the printer corresponding to a search condition is shown in drawing 6 . A user chooses and does the inverse video of the name of a printer to use from the list of this printer that is search results, clicks the selection button 606, and inputs selection.

[0047] Printing will be performed, if a user checks the name "Phobo LBP-930" displayed on the printer name field 620 of the print panel 601 and clicks the O.K. button 610.

[0048] (The 2nd embodiment) Drawing 8 is the explanatory view of the 2nd embodiment.

[0049] a printer 801 -- the interior -- printer information (the name of a printer, and the network address of a printer --) It has the printer information storage section 803 and the notice section 802 of connection which memorize the list of option which shows the existence of options, such as color or monochrome, resolution, an usable paper size, an usable font list, and double-side printing. In the printer information storage section 803, the printer information which has structure as shown in drawing 2 is saved.

[0050] If a printer 801 is connected to a network, the notice section 802 of connection of a printer 801 will create the printer information transmitting packet 900 which performed encoding as received printer information from the printer information storage section 803 and shown in drawing 9 . It broadcasts to the printer information data base creation program 824 which exists on a network through a network (804).

[0051] The printer information acquisition section 805 of the printer information data base creation program 824 which exists on a network will decode this packet 900, if the printer information transmitting packet 900 is received. If data (a name, URL, an usable paper size, an usable font, etc.) as shown in drawing 2 by decode is obtained, this decoded printer information will be passed to the printer information data-base-construction section 806 (814).

[0052] The printer information data-base-construction section 806 makes a data base as

shown in drawing 5 based on the answered data, and the data is saved in the printer information data base storage section 807 (815).

[0053] On the other hand, the printer retrieval program 808 performs search of a printer in case a network user prints a document from application like the 1st embodiment.

[0054] (The 3rd embodiment) [ a printing demand to the printer registered into the suitable time interval or a user's printer information data base set to the demand of a user or the timer with the form of this operation ] It constituted so that printer information data base creation directions might be taken out to the printer information data base creation program 104 in the 1st embodiment.

[0055] By the printer information data base creation program 104 being executed like the 1st embodiment, the printer information of the printer added to the network after the last creation is newly added and registered into a printer information data base, and a printer information data base is updated. Search of a printer in case a network user prints a document from application is performed like the 1st embodiment.

[0056] Thus, a printer information data base is maintainable to the newest thing by updating printer information of a specific printer or all the printers by predetermined timing.

[0057] (The 4th embodiment) [ a printing demand to the printer registered into the suitable time interval or a user's printer information data base set to the demand of a user or the timer with the form of this operation ] It constituted so that a printer information data-base-updating demand might be given to the printer information data base creation program 104 or 824 in the 1st or 2nd embodiment. Drawing 10 is flow [ of the 4th embodiment ] -. It is a chart.

[0058] If a data-base-updating demand is advanced by S1001, a printer information data base creation program will create a pair of list of the network address of a printer name and a printer from a printer information data base by S1002. In S1003, one pair of a printer name and the network address is read from the created list.

[0059] In S1004, the printer information request packet 1100 as this shows to drawing 11 is created, and it transmits to a network, and waits for the response from a printer.

[0060] On the other hand, if the printer information request packet 1100 is received, a printer will create the printer information reply packet 320 like the 1st embodiment, and will send a reply this.

[0061] and when the printer information reply packet 320 of S1005 smell lever does not come on the contrary in predetermined time from a printer It considers that this printer does not already exist on a network, and it branches to S1006, and after it deletes the data of the printer name which corresponds from a printer information data base, it progresses to S1009. At this step, it investigates whether it is the tail of a pair of list of the network address of a printer name and a printer, if it is coming to the tail, processing will be ended, and if it is not a tail, it will return to S1003.

[0062] On the other hand, it branches to S1007, without deleting data, when a printer information reply packet is answered in 320 predetermined time from a printer in S1005. Difference is judged [ be / already / it / under / printer information data base / comparison ] to be the printer information acquired by having decoded this answered packet 320 for a certain applicable printer information. If both differ, after branching to S1008 and updating the applicable printer information in a printer information data base, it progresses to S1009. At this step, it investigates whether it is the tail of a pair of list of the network address of a printer name and a printer, if it is coming to the tail, processing will be ended, and if it is not a tail, it will return to S1003.

[0063] On the other hand, it progresses to S1009 as it is, without updating a data base, if both do not differ in S1007, and investigates whether it is the tail of a pair of list of the network address of a printer name and a printer, if it is coming to the tail, processing will be ended, and if it is not a tail, it will return to S1003.

[0064] In addition, even if it applies this invention to the system which consists of two or more devices, you may apply it to the equipment which consists of one device. Moreover, it cannot be overemphasized that this invention can be applied also when attained by supplying a program to a system or equipment. In this case, that system or equipment becomes possible [ enjoying the effect of this invention ] by reading the storage which stored the program expressed by the software for attaining this invention to this system or equipment.

[0065]

[Effect of the Invention] According to [ as explained above ] this invention, it is network -. / without a network administrator updating a printer information data base manually so that a printer can be used The network user can discover the printer connected to the network which has the function which he wants to use, and can use a desired printer. Moreover, in updating a printer information data base, it is effective in the ability to abolish the necessity that a manager gets to know the kind of printer, and a function and a required printer driver.

[0066] Moreover, Internet - In the field of printing By extending search of a printer and the notice of connection on the Internet A print shop etc. uses the printer currently used by this invention as a printer. [ a print shop's user performs a search of a printer by the program of the printer search method of this invention, or ] (receiving the notice of connection from a printer \*\*\*\*) By using the service which exhibits the printer information data base which is the result of receiving a notice from a \*\*\*\*\* printer by the program of a printer search method, it is effective in the ability to look for a print shop with the printer of the function which he wants to use.

[Brief Description of the Drawings]

[Drawing 1] It is the explanatory view of the 1st embodiment concerning this invention.

[Drawing 2] It is the explanatory view of the structure of the printer information in each embodiment concerning this invention.

[Drawing 3] It is the flow chart of the 1st embodiment.

[Drawing 4] It is the explanatory view of the printer information request packet of the 1st embodiment, and a printer information reply packet.

[Drawing 5] It is the explanatory view of the printer information data base in each embodiment concerning this invention.

[Drawing 6] It is the explanatory view of search of the printer in the 1st embodiment (the 2nd embodiment).

[Drawing 7] It is the flow chart of search of the printer information data base of the 1st embodiment (the 2nd embodiment).

[Drawing 8] It is the explanatory view of the 2nd embodiment concerning this invention.

[Drawing 9] It is the explanatory view of the printer information transmitting packet in the 2nd embodiment.

[Drawing 10] It is the flow chart of the 4th embodiment.

[Drawing 11] It is the explanatory view of the printer information request packet in the 4th embodiment.

[Explanations of letters or numerals]

101, 801 Printer

102, 803 Printer information storage section

103 Printer Information Response Section

104, 824 Printer information data base creation program

105, 805 Printer information acquisition section

106, 806 Printer information data-base-construction section

107, 807 Printer information data base storage section

108, 808 Printer retrieval program

116, 816 Printer search condition input section

117, 817 Printer retrieval execution section

119, 819 Search-results display

310, 1100 Printer information request packet

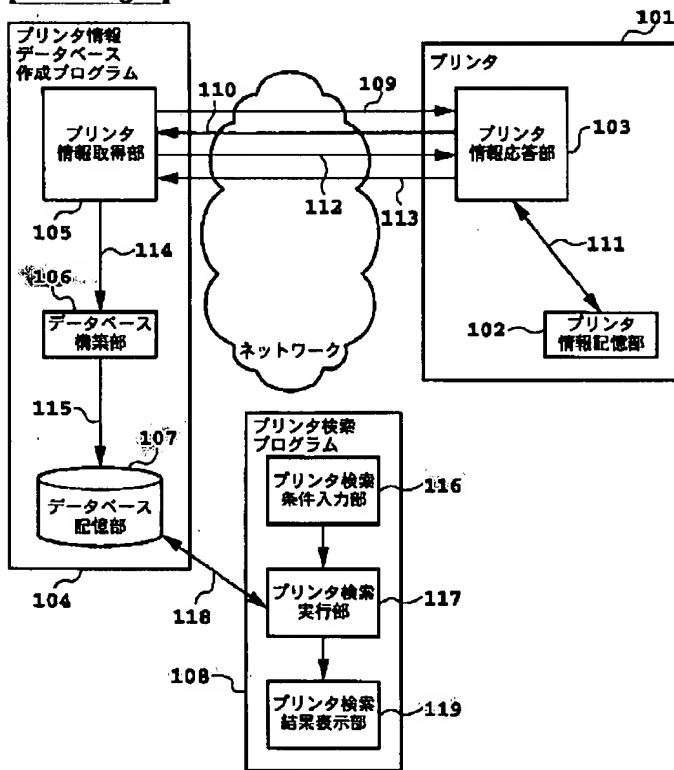
320 Printer Information Reply Packet

802 Notice Section of Printer Connection

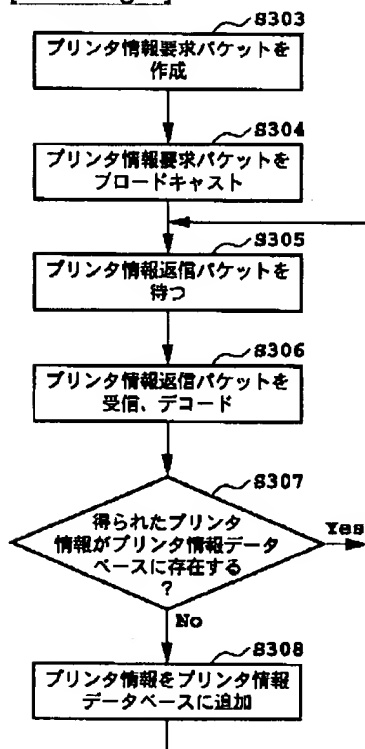
900 Printer Information Transmitting Packet



[Drawing 1]



[Drawing 3]



[Drawing 2]

## プリンタ情報

プリンタ情報	リスト	データ長
プリンタの名前	文字列	データ長
「プリンタの名前」データ		
プリンタのネットワークアドレス	ネットワークアドレス	データ長
「プリンタのネットワークアドレス」データ		
カラーor白黒	真理値	データ長
「カラーor白黒」データ		
解像度	数値	データ長
「解像度」データ		
使用可能用紙リスト	リスト	データ長
用紙	文字列	データ長
「用紙」データ		
用紙	文字列	データ長
「用紙」データ		
:		
フォントリスト	リスト	データ長
フォント名	文字列	データ長
「フォント名」データ		
フォント名	文字列	データ長
「フォント名」データ		
:		
オプションリスト	リスト	データ長
オプション詳細リスト	リスト	データ長
「オプション詳細リスト」データ		
オプション詳細リスト	リスト	データ長
「オプション詳細リスト」データ		
:		
:		

[Drawing 4]

(A)

プリンタ情報要求パケット

ヘッダ
送り先アドレス : ブロードキャストアドレス
送り元アドレス : プリンタ情報データベース 作成プログラムが動いている マシンのアドレス
データ
プリンタ情報データ要求

310

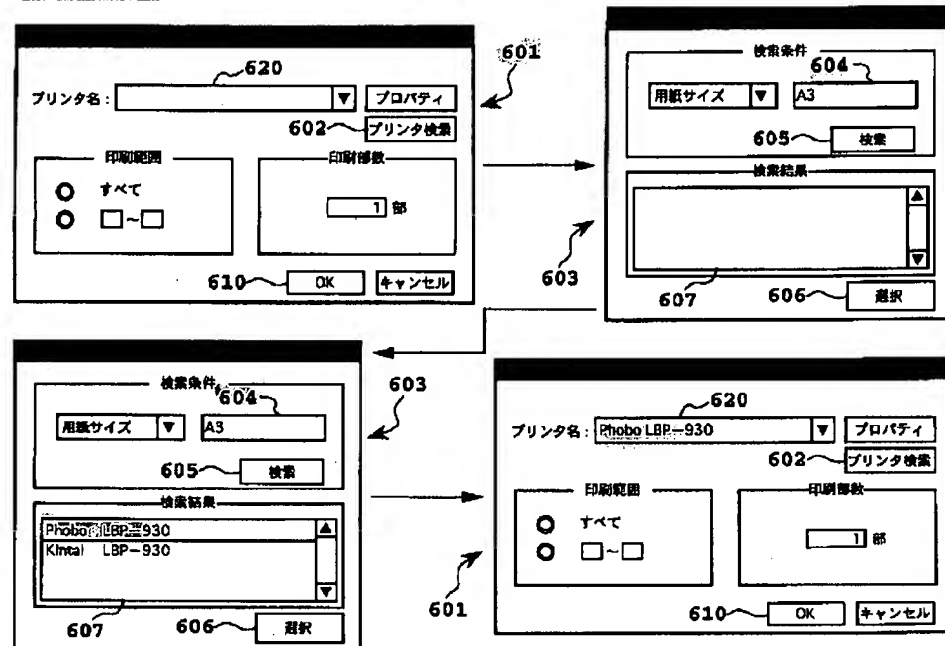
(B)

プリンタ情報返信パケット

ヘッダ
送り先アドレス : プリンタ情報データベース 作成プログラムが動いている マシンのアドレス
送り元アドレス : プリンタのアドレス
データ
図2のプリンタ情報

320

[Drawing 6]



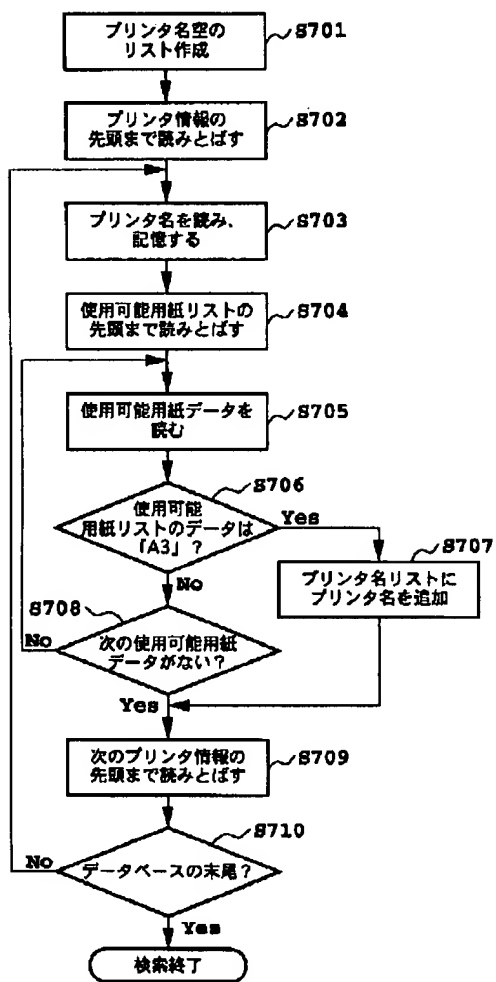
[Drawing 5]

500

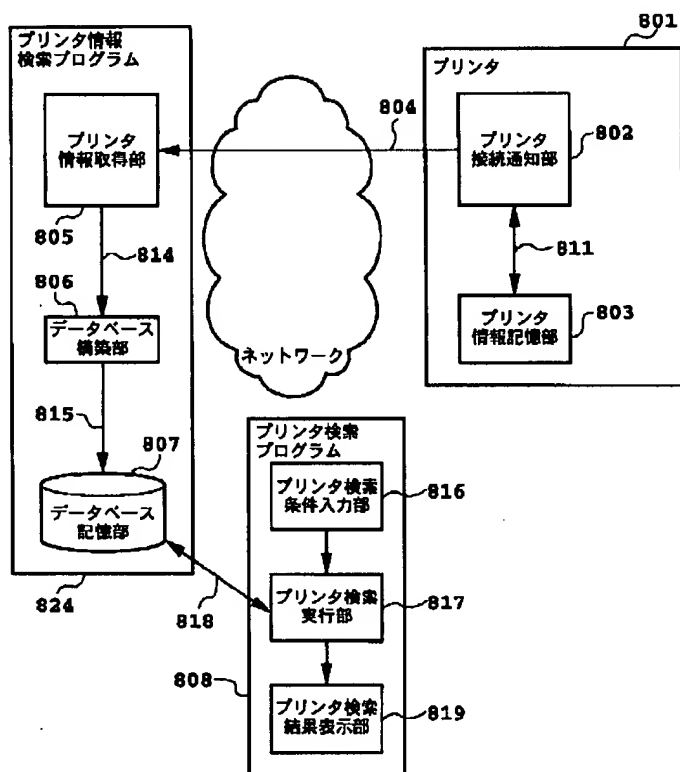
プリンタ  
1台分の  
データ  
510

プリンタ情報データベース		リスト		データ長	
520	プリンタ情報		リスト	データ長	
	プリンタの名前		文字列	データ長	
	「プリンタの名前」データ				
	プリンタのネットワークアドレス		ネットワークアドレス	データ長	
	「プリンタのネットワークアドレス」データ				
	カラーor白黒		真理値	データ長	
	「カラーor白黒」データ				
	解像度		数値	データ長	
	「解像度」データ				
	使用可能用紙リスト		リスト	データ長	
		用紙	文字列	データ長	
		「用紙」データ			
		用紙	文字列	データ長	
		「用紙」データ			
		:			
		:			
	フォントリスト		リスト	データ長	
		フォント名	文字列	データ長	
		「フォント名」データ			
		フォント名	文字列	データ長	
		「フォント名」データ			
		:			
		:			
	オプションリスト		リスト	データ長	
		オプション詳細リスト	リスト	データ長	
		「オプション詳細リスト」データ			
		オプション詳細リスト	リスト	データ長	
		「オプション詳細リスト」データ			
	:				
	:				
	:				
	:				
	:				

[Drawing 7]

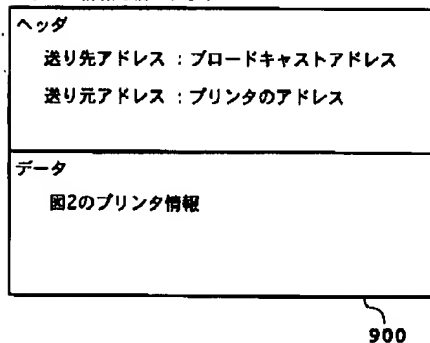


[Drawing 8]

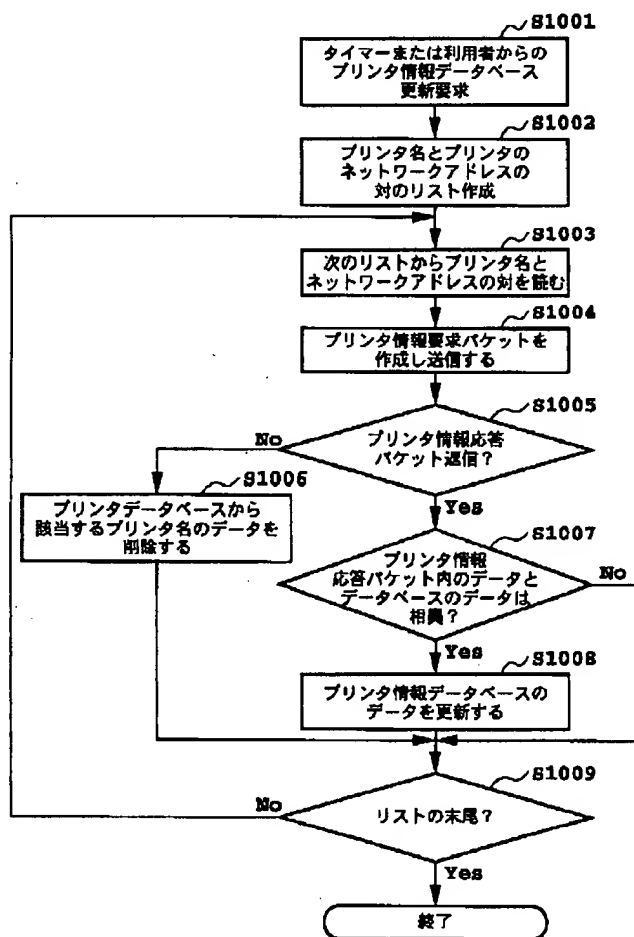


[Drawing 9]

プリンタ情報送信バケット

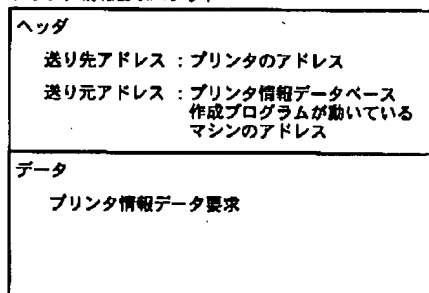


[Drawing 10]



[Drawing 11]

プリンタ情報要求バケット



1100

[Translation done.]